

National Weather Service

Annual Operating Plan (Condensed)

Fiscal Year 2001



Table of Contents

| | <u>Page</u> |
|--|-------------|
| Mission | 1 |
| Planning Assumptions/Overview | 1 |
| 1.0 Program Information/Planned Accomplishments | |
| 1.1 NWS Objectives | 1 |
| 1.2 NWS Performance Measures | 2 |
| 1.3 NWS Milestones | 3 |
| 1.4 Due Dates/Reports | 7 |
| 2.0 Budget Resource Information by Line Item and Strategic Plan Goal | |
| 2.1 Proposed Transfers/Reprogramming | 8 |
| 2.2 Add-ons/New Starts/Terminations | 8 |
| 3.0 Management Issues | |
| 3.1 Diversity | 9 |
| 3.2 Affirmative Action | 9 |
| 3.3 Employee Development and Training | 10 |
| 3.4 Environmental Compliance | 10 |
| 4.0 Other Information | |
| 4.1 Minority Serving Institutions | 10 |
| 4.2 Validation and Verification | 11 |

Mission

The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other government agencies, the private sector, the public and the global community.

Planning Assumptions/Overview

The NWS FY 2001 Operating Plan is based on an appropriation of \$692.8M, an increase of \$35.9M over the FY 2000 appropriation. This includes \$629.4M for the Operations, Research, & Facilities (ORF) account and \$63.4M in the Procurement, Acquisition, and Construction (PAC) account.

Funding levels provided in the appropriation will enable the NWS to continue to improve climate, weather, and water services and achieve the goals of the NOAA and NWS Strategic Plans. The plan also supports key Departmental program initiatives including the Natural Disaster Reduction Initiative and Climate in the 21st Century.

However, the milestones in this plan do not reflect any adjustments for additional NOAA Corporate Costs, Mandated Current or Prior Year Deobligations, or the Congressionally required across the board reduction for travel and equipment. The NWS operating plan will be amended after receipt and consideration of this information.

1.0 Program Information/Planned Accomplishments

1.1 National Weather Service (NWS) Objectives

The NWS supports three of NOAA's Strategic Planning goals (Advance Short-Term Warning and Forecast Services, Implement Seasonal to Inter-annual Climate Forecasts, and Predict and Assess Decadal to Centennial Change) and will continue to examine potential involvement in other NOAA-related activities.

The milestones in this plan are presented in accordance with the five major goals in the NWS Strategic Plan: 1) Deliver Better Products and Services, 2) Capitalize on Scientific and Technological Advances, 3) Exercise Global Leadership, 4) Change the Organizational Culture, and 5) Manage NWS Resources.

1.2 NWS Performance Measures

The NWS continues to be a customer-oriented agency focused on service to the public. In support of the NOAA and NWS Strategic Plan, the NWS has set the following performance goals for FY 2001:

| | <i>FY 2000 Actual</i> | <i>FY 2001 President's Budget Target</i> | <i>Revised FY 2001 Target</i> |
|---|----------------------------------|---|--|
| Tornado Warning | | | |
| Lead Time (minutes) | 10 | 13 | 13 |
| Accuracy (%) | 63 | 70 | 68 |
| False Alarm Rate (%) | 76 | 59 | 73 |
| Flash Flood Warning | | | |
| Lead Time (minutes) | 43 | 57 | 45 |
| Accuracy (%) | 86 | 86 | 86 |
| Winter Storm Warning | | | |
| Lead Time (hours) | 9 | 13 | 13 |
| Accuracy (%) | 85 | 86 | 86 |
| Hurricane Warning | | | |
| Lead Time (hours) | * | 21 | 21 |
| Aviation Forecasts (Ceiling/Visibility) | | | |
| Accuracy (%) | 15 | 21 | 21 |
| False Alarm Rate (%) | 53 | 46 | 51 |
| Marine Forecasts (Wind/Wave) | | | |
| Accuracy (%) | 50 | 53 | 53 |
| Precipitation Forecasts | | | |
| Accuracy of Day-3 Forecast (%) | 16 | 22 | 22 |

** No land-falling hurricanes in FY 2000*

1.3 NWS Milestones

Deliver Better Products and Services

Public Services

- Extend public weather forecasts from five to seven days (1st Qtr)
- Award contract for additional source(s) of NWR transmitters. (1st Qtr)
- Work with the Salt Lake Olympic Games contractor and Utah State officials to complete a test of the weather support system for the 2002 Olympic Games (2nd Qtr)
- Update the current NOAA Weather Radio (NWR) plan to identify high risk areas and prioritize areas lacking NWR coverage (2nd Qtr)
- Begin web-based data collection for snow spotters and cooperative observers (2nd Qtr)
- Begin centralized collection and distribution of NEXRAD radar data (2nd Qtr)
- Produce a Day 1 and Day 2 convective outlook in probabilistic format (2nd Qtr)
- Conduct a best practice review at WFOs and RFCs in the Central and Eastern Regions (2nd Qtr)
- Establish the NWS "Tsunami Ready" Program (3rd Qtr)
- Refurbish 6 NOAA Weather Radio stations in existing network (3rd Qtr)
- Host Hurricane Preparedness Tour at selected coastal WFOs (3rd Qtr)
- Award contract to improve NWR voice transmissions (4th Qtr)
- Award contract for a permanent S-band Doppler radar at Evansville, IN (4th Qtr)
- Install 50 new NOAA Weather Radio network transmitters using Congressional and Partnership funding (4th Qtr)
- Create a standard NWS web site to improve information access and distribution (4th Qtr)
- Recognize 30 new "StormReady" communities (4th Qtr)
- Reduce average 72 hour hurricane track forecast error to 216 nautical miles (4th Qtr)
- Finalize Interagency Volcanic Ash Agreement (4th Qtr)

Climate Services

- Issue daily 6-10 Day and Week 2 probabilistic outlooks(1st Qtr)
- Review and modify existing process for creating and implementing new climate and weather products(3rd Qtr)
- Develop climate education program for field personnel (4th Qtr)
- Consolidate climate forecast service needs through regional assessment analysis (4th Qtr)
- Develop user relevant probabilistic climate forecast verification measures (4th Qtr)

Aviation Services

- Establish an aviation collaborative forecasting effort at Dallas/Fort Worth, TX WFO (2nd Qtr)
- Develop aviation training plan for NWS forecasters (2nd Qtr)
- Conduct Aviation Product Development Partnership Workshop (2nd Qtr)

- Test prototype for transmitting aviation weather warnings to critical airport personnel (3rd Qtr)
- Implement 24 hour operation of the Aviation Weather Center's Collaborative Convective Forecast Product (3rd Qtr)
- Complete Aviation Weather Brochure for Pilots (4th Qtr)
- Implement verification program for FAA Central Weather Service Units (4th Qtr)
- Extend Aviation (AVN) model guidance to four times a day (4th Qtr)

Marine Services

- Implement graphical 96-hour wave period and dominant wave direction forecast (2nd Qtr)
- Develop a marine outreach partnership program with National Ocean Service (3rd Qtr)
- Develop implementation plan to install 7 buoys in Alaska per Congressional direction (3rd Qtr)
- Install 2 new data buoys in Alaska per Congressional direction (4th Qtr)
- Implement verification of Special Marine Warnings (4th Qtr)

Fire Services

- Complete assessment of FY 2000 fire weather services (2nd Qtr)
- Complete interagency review of U.S. wildland fire policy (2nd Qtr)
- Define user requirements for seasonal fire weather guidance (2nd Qtr)
- Implement procedures to improve NWS fire weather incident response system (3rd Qtr)
- Implement web-based system for fire weather spot forecasts (2nd Qtr)

Flood Forecasting and Water Management

- Develop a flood advisory committee in partnership with the Delaware River Basin Commission (1st Qtr)
- Implement new NWS quantitative precipitation forecast process in the Western U.S. (1st Qtr)
- Complete evaluation of the Southern Region River Forecast Center 24hrs/7day operations (2nd Qtr)
- Develop, publish, and distribute a preparedness brochure/web information on inland flood effects of hurricanes along the East Coast (3rd Qtr)
- Produce probabilistic flood forecast maps for the Juniata River near Lewistown, PA to serve as the prototype for national AHPS implementation (4th Qtr)
- Produce national graphical flood risk products (4th Qtr)
- Deliver AHPS probabilistic products at 124 locations in the Ohio River and Upper Mississippi Basin (4th Qtr)

Capitalize on Scientific and Technological Advances

Expand Cooperation with Research Community

- Complete NWS Science and Technology Infusion Plan (3rd Qtr)

- Award 4 COMET Outreach Cooperative Projects to universities (4th Qtr)
- Award 3 CSTAR grants to universities to accelerate science infusion into forecast operations (4th Qtr)

Data Assimilation/Numerical Modeling

- Deliver NCEP (NWS) contribution to regional community (Weather and Research Forecast/WRF) model (1st Qtr)
- Establish Joint Center for Satellite Data Assimilation (2nd Qtr)
- Make Ensemble model forecasts (regional and global) available on the web in real time (3rd Qtr)
- Incorporate sea surface wind data from NASA's QuikScat into data assimilation and forecast system (3rd Qtr)
- Incorporate moisture data from NOAA 15's Advanced Microwave Sounding Unit into the data assimilation and forecast models (4th Qtr)
- Improve resolution of the global climate model from 300 kilometers to 200 kilometers (4th Qtr)
- Begin routine operation of a global ocean data assimilation system to support seasonal forecasts (4th Qtr)
- Deploy hurricane storm surge model for Norfolk and Narragansett-Buzzards Bay areas (4th Qtr)
- Establish NCEP contribution to community based Global model (4th Qtr)

Technology

- Begin design and coding of AWIPS 5.2 Software (3rd Qtr)
- Begin deployment of the upgraded ASOS processor (4th Qtr)
- Optimize WSR-88D Snow Accumulation Algorithm for western U.S. mountainous terrain (4th Qtr)
- Incorporate new Digital Storm-Total Precipitation product on the WSR-88D (4th Qtr)
- Begin integration and testing of AWIPS 5.1 Software (4th Qtr)
- Conduct National Digital Forecast Database demonstration at selected WFOs (4th Qtr)
- Develop national plan for Terminal Doppler Weather Radar (TDWR) and FAA radar data access (4th Qtr)
- Procure 143 new ASOS processor units (4th Qtr)
- Procure 143 new ASOS dewpoint sensors (4th Qtr)

Improve Understanding

- Complete study of the January 2000 East Coast snow storm (2nd Qtr)
- Complete science review of the NCEP Eta Model performance during recent weather events (3rd Qtr)

Exercise Global Leadership

Increase U.S. participation in international activities

- Complete bilateral agreements with Saudi Arabia, Singapore, and Vietnam (2nd Qtr)
- Install EMWIN receivers in Chuuk, Yap, and Palau (2nd Qtr)
- Complete adaptation of the historical tsunami database to the Caribbean (4th Qtr)
- Publish a Caribbean Website for current weather, forecasts and warnings as well as digital radar data (3rd Qtr)
- Develop threats assessment for Africa out to 5 days (4th Qtr)
- Establish new river and flood forecast centers in El Salvador, Honduras and Nicaragua (4th Qtr)
- Initiate one prototype river forecast system for Aral Sea (4th Qtr)

Foster national and international education efforts

- Host 4 visiting Chinese scientists in the Office of Science and Technology (2nd Qtr)
- Conduct a hurricane awareness tour to Caribbean countries and Mexico (3rd Qtr)
- Conduct a regional training course in “Applications of Climate Data” for 12 international students (3rd Qtr)
- Establish and conduct the first training course for international and domestic commercial pilots and air traffic controllers for volcanic ash avoidance (3rd Qtr)
- Host 20 meteorologists from Latin America, Africa and the Pacific Islands at NWS International Training Desks at NCEP and Pacific Region Headquarters (4th Qtr)
- Translate one distance learning module into Spanish and distribute to Latin American countries (4th Qtr)

Change the NWS Organizational Culture

Enhance professional development and training programs

- Implement new web-based numerical weather prediction training (2nd Qtr)
- Provide WSR-88D Distant Learning Operations training for 75 new field forecasters (2nd Qtr)
- Complete focused winter weather training at 5 Eastern Region offices (2nd Qtr)
- Complete team training to 200 employees in 10 NWS field Office (3rd Qtr)
- Complete four “Warning Decision Making” workshops for 100 forecasters (4th Qtr)
- Complete leadership training for 60 NWS staff at grades 13 and above (4th Qtr)

Increase the diversity of the NWS

- Conduct training for NWS/NOAA Diversity Change Agents (1st Qtr)
- Assist in planning and participate in NOAA’s Diversity Network Conference (1st Qtr)
- Form Quality of Worklife Committee (2nd Qtr)
- Develop NWS exit survey for departing employees to evaluate possible workplace issues impacting diversity (3rd Qtr)
- Expand the number of diversity change agents from 60 to 120 employees (4th Qtr)
- Provide formal review of NOAA Cultural Audit (4th Qtr)

Improve the representation of women, minorities, and people with disabilities

- Participate in the NOAA Graduate Scientist Program(2nd Qtr)
- Establish a minority mentoring program to identify career advancement opportunities (2nd Qtr)
- Participate in the Jackson State University “Expanding Opportunities” Conference (2nd Qtr)
- Recruit 35 students for DOC’s Post Secondary Internship and NOAA Faculty/Student Intern Research Program (3rd Qtr)
- Recruit 10 students for the High School/High Tech and the Workforce Recruitment Program (3rd Qtr)
- Host NWS EEO Conference (3rd Qtr)
- Increase representation of women, minorities, and people with disabilities by 1% (4th Qtr)

Manage NWS Resources

Leverage Information Technology/Infrastructure

- Complete installation of Phase II of the IBM supercomputer (1st Qtr)
- Complete installation of NCEP’s network security enhancements (3rd Qtr)
- Procure 16 new ground tracking stations for the Radiosonde Network (4th Qtr)
- Begin acquisition activities for the next generation supercomputer (4th Qtr)
- Complete site selection for Key West, FL WFO (4th Qtr)
- Award construction contract for Caribou, ME WFO (4th Qtr)
- Complete installation of backup site for the AWIPS Master Ground Station (MGS)(4th Qtr)
- Install 50 new Open Radar Processing Generators (ORPG) in the NEXRAD network (4th Qtr)

Ensure Cost Efficiency/Management

- Establish executive level boards for Capital Investment, Operations, Workforce/Human Resources, and Science & Technology (1st Qtr)
- Begin cost accounting project for NOAA Weather Radio (1st Qtr)
- Complete transition of the Regional networks from AT&T-FTS 2000 to MCI-FTS 2001 (2nd Qtr)
- Implement the new NWS Financial Management System (3rd Qtr)
- Complete plan to implement cost accounting in all regions (4th Qtr)

1.4 NWS Activities/Due Dates (Congressional Reports)

The FY 2000 Conference language directs the NWS to submit a spending plan to the Committee on Appropriation for the Cooperative Observer Network. No due date was specified. However, NWS plans to submit a plan in the 3rd Quarter of FY 2001.

2.0 Legislative Information

2.1 Proposed Transfer/Reprogrammings:

No transfer/reprogrammings are planned at this time.

2.2 Add-ons/New Starts/Terminations:

Add-ons

- *NOAA Weather Radio (NWR) Transmitters*: \$2.0M for NWR transmitters in Illinois, Kentucky, Mississippi, Alaska, New Hampshire, South Dakota, Indiana
- *Data Buoys*: \$1.7M to install 7 data buoys along the coast of Alaska
- *2002 Winter Olympic Support*: \$.59M for the University of Utah to implement data collection and automated weather station installation in preparation for the 2002 Winter Olympic Games
- *Mt. Washington Observatory*: \$.05M for the collection of observations and improvements to the visitors museum at Mount Washington Observatory
- *North Dakota Agricultural Weather Network*: \$.27M to continue North Dakota State University's implementation of the North Dakota Agricultural Network, a surface observing mesonet intended to provide weather and soil information to agriculture users

New Starts

- *NOAA Weather Radio Program*: \$2.3M for NWR program. NWS is planning to use the funding to improve the NWR voice messages, replace the Console Replacement System (CRS) processor, and add three new transmitters to the NWR network
- *COOP Network Rescue*: \$.4M to begin replacement of obsolete surface instrumentation, beginning with replacement of the paper tape devices in the fisher porter rain gages
- *Central Computer Facility*: \$2.0M to augment the Class VIII supercomputer to expand operational suite of climate products

Terminations

- *Advanced Weather Prediction System*: -\$.47M was reduced to reflect the completion of the one time earmark for the University of Oklahoma

3.0 Management Issues

3.1 Diversity

The National Weather Service is dedicated to ensuring a diverse workforce by following the NOAA and NWS Diversity Plans. In FY 2001, the NWS will continue to capitalize on the diversity of its workforce to improve participation, communication, and overall organizational performance by completing the following milestones:

- Provide diversity training opportunities for all NWS Employees (All Qtrs)
- Continue NWS's Diversity Council and facilitate NOAA-wide diversity issues (All Qtrs)
- Assist in planning and participate in NOAA's Diversity Network Conference (1st Qtr)
- Form Quality of Worklife Committee (2nd Qtr)

- Develop NWS exit survey for departing employees to evaluate possible workplace issues impacting diversity (3rd Qtr)
- Expand the number of diversity change agents from 60 to 120 employees (4th Qtr)
- Provide formal review of NOAA Cultural Audit (4th Qtr)
- Conduct training for NWS/NOAA Diversity Change Agents (1st Qtr)

3.2 Affirmative Action

The NWS supports the NOAA Affirmative Employment Plan and Strategic Plan goals to increase its representation of women, minorities and people with disabilities (WMD). The NWS will continue to foster and aggressively promote opportunities for advancement, training and career develop of all under-represented groups. In FY 2001, the NWS has a goal to increase its representation of women and minorities by 1%.

NWS Affirmative Action activities in FY 2001 include:

- Increase relationships with Minority Serving Institutions (MSIs) (All Qtrs) *(See section 4.2 for MSI activities)*
- Begin implementation of NOAA's 1999 Affirmative Action Plan for grades 13 and above (4th Qtr)
- Establish Teams to implement the EEO goals and objectives in the NWS Strategic Plan (1st Qtr)
- Participate in the NOAA Graduate Scientist Program (2nd Qtr)
- Establish an annual training requirements plan for all employees to understand the NWS Strategic Plan goals, Affirmative Action Plan and EEO policies and procedures (3rd Qtr)
- Recruit 35 students for DOC's Post Secondary Internship and NOAA Faculty/Student Intern Research Program (3rd Qtr)
- Recruit 4 students for the High School/High Tech Program for high school students with disabilities (3rd Qtr)
- Recruit 2 students for the Workforce Recruitment Program for undergraduate students with disabilities (4th Qtr)
- Host NWS EEO Conference (3rd Qtr)

3.3 Employee Development and Training

The NWS places a high priority on employee development and training. In FY 2001 the NWS will continue to utilize the National Strategic Training and Education Plan (NSTEP) to integrate and prioritize training requirements. The NWS will complete the following employee development and training actions:

- *COMET* - provide 12 residence classes and workshops in advanced forecasting techniques
- *NWS Training Center* - provide 130 residence classes in a number of areas including maintenance, system operations, management, and leadership
- Provide 25 hours of teletraining instructional materials on AWIPS applications, WSR-88D use and advanced integrated sensor training
- Release 55 hours of Internet training materials on numerical weather prediction, hydrology, fog

- forecasting, heavy precipitation forecasting, and polar satellite data applications
- Release 6 severe weather case studies on the Internet for internal training purposes
- Implement new web-based numerical weather prediction training
- Provide WSR-88D Distant Learning Operations training for 75 new field forecasters
- Complete focused winter weather training at 5 Eastern Region offices
- Complete team training to 200 employees in 10 NWS field Office
- Complete four “Warning Decision Making” workshops for 100 forecasters
- Complete leadership training for 60 NWS staff at grades 13 and above

3.4 Environmental Compliance

During FY 2001, the NWS will emphasize both environmental compliance and safety at our facilities. This will include establishing policy, procedures, and training to improve environmental compliance and employee safety. Specifically, the NWS will complete the following actions:

- Complete environmental compliance refresher training for 30 NWS employees (3rd Qtr)
- Update Spill Prevention, Control and Countermeasure (SPCC) plans for 18 NWS sites (4th Qtr)
- Complete fall protection and rescue training for 110 employees (4th Qtr)

4.0 Other Information

4.1 Minority Serving Institutions

The NWS will increase its relationship with Minority Serving Institutions (MSI) including Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions, and Tribal Colleges and Universities. The NWS will increase direct and indirect assistant to MSIs by \$100K in FY 2001. Specific activities include:

- Establish a Cooperative Agreement with Howard University to recruit student program and financial management positions
- Expand visits to at least 10 new MSIs
- Establish partnerships with at least three new MSIs
- Recruit two MSI faculty members for Faculty Research Program (temporary summer positions)
- Expand vacancy advertising in MSI publications and journals
- Participate in Jackson State University’s “Expanding Opportunities” Conference
- Provide financial support to the Society for Advancement of Chicanos and Native Americans in Science (SACNAS)

4.2 Validation and Verification

Verification is the process of comparing the predicted weather to the actual weather. The process begins with the collection of warnings, forecasts and the corresponding observational data from every NWS office across the Nation. The data are all subject to consistency checks at both the local and national

level. Observational data that are not recorded in an automated manner are subject to additional scrutiny. These data are entered into a program at the local level that requires that the source of the data be recorded for each event, that all the required data fields are completed, and that all the data points are consistent with expected values based on the type of event. The data are also subject to random review at the national level before being accepted as complete and accurate.

During FY 2001, the following activities will be underway to further improve the NWS verification and validation program:

- Continue software development effort to enable verification statistics for winter storm watches and warnings, high winds, special marine forecasts, and costal/lake-shore flood warnings (4th Qtr)
- Begin development of an interactive web site for marine wind and wave forecasts, river stage forecasts, and quantitative precipitation forecasts (4th Qtr)
- Begin software development for advanced aviation terminal area forecast verification program (4th Qtr)